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A DYNAMIC DATA DISPLAY HAVING SLIDE DRAWER WINDOWING

Background of the Invention

1. Technical Field

The present invention relates to a data display structure, and associated method of usage,
5 for dynamically displaying a data feed.

2. Related Art

A spreadsheet in a traditional spreadsheet format is not well suited to dynamically
displaying a data feed. Thus there is a need for a data display structure, and associated method of
usage, that is well suited to dynamically displaying a data feed.

Summary of the Invention

The present invention provides a data display structure, comprising:

a main drawer D_0 that overlays a display screen, wherein D_0 is adapted to dynamically
display a portion of a data feed; and

N additional drawers D_1, D_2, \dots, D_N in an overlay pattern $\{D_1, D_2, \dots, D_N\}$ relative to D_0 ,
15 wherein N is at least 2, wherein each drawer D_i ($i=1, 2, \dots, N$) is adapted to being opened or to
being closed, and wherein a first drawer of D_0, D_1, \dots, D_N is adapted to display content in
accordance with a user command that is directed to a second drawer of D_0, D_1, \dots, D_N .

The present invention provides a method of dynamically displaying data, comprising:

overlying a main drawer D_0 on a display screen;

dynamically displaying, in spreadsheet format on D_0 , a portion of a data feed; and
positioning N additional drawers D_1, D_2, \dots, D_N in an overlay pattern $\{D_1, D_2, \dots, D_N\}$
relative to D_0 , wherein N is at least 2, wherein each drawer D_i ($i=1, 2, \dots, N$) is adapted to being
opened or to being closed;

5 executing a user command that is directed to a first drawer of D_0, D_1, \dots, D_N ; and
displaying content on a second drawer of D_0, D_1, \dots, D_N based on the user command.

The present invention provides a data display structure, and associated method of usage,
that is well suited to dynamically displaying a data feed.

Brief Description of the Drawings

The file of this patent contains at least one drawing executed in color. Copies of this
patent with color drawing(s) will be provided by the Patent and Trademark Office upon request
and payment of the necessary fees.

Each of FIGS. 1-21 herein is in accordance with embodiments of the present invention.

FIG. 1 depicts a data display system comprising a data display structure having a main
15 drawer and three movable drawers.

FIG. 2 depicts a more detailed view of the data display structure of FIG. 1.

FIG. 3 depicts FIG. 2 after a first movable drawer has been moved in a door-opening
direction.

FIG. 4 depicts FIG. 2 after a second movable drawer has been moved in a door-closing
20 direction.

FIG. 5 depicts the three movable drawers of FIG. 2 as each being closed.

FIG. 6 depicts the three movable drawers of FIG. 2 with one of the three movable drawers fully opened, and the remaining two drawers of the three movable drawers closed.

FIGS. 7-17 depict data display structures in conjunction with a live data feed of stock bids and offers occurring in real time on the New York Stock Exchange, with the FIGS. 7-17 having variations in:

- whether the data feed is being displayed or not displayed;
- whether if the data feed is being displayed, the entire data feed or a portfolio subset of the data field is being displayed;
- whether drawers of the data display structure are open or closed;
- which of several keys is being used as a sort key for sorting rows of a spreadsheet representation in a drawer of the data display structure;
- whether rows of the spreadsheet representation are being highlighted or not highlighted; and
- whether buttons of a drawer of the data display structure are being highlighted or not highlighted.

FIGS. 18-21 depict a more detailed view of the data display structure of FIG. 1 with a main drawer and movable drawers, showing a different arrangement of the main drawer and the movable drawers in each of FIGS. 18-21.

Detailed Description of the Invention

Each of FIGS. 1-21 herein is in accordance with embodiments of the present invention.

FIG. 1 depicts a data display system 10, comprising a source 12 of data that transmits a

data feed 14 to a data display structure 18 that overlays a display screen 16. The display screen 16 may include, *inter alia*, a computer screen, a computer terminal screen, a television screen etc. The data feed 14 may be a live data feed or a stored data feed. A live data feed is a data feed of events that are occurring at the source 12 in real time (e.g., stock bids and offers that occur in real time) and are being fed to the data display structure 18 in real time. If the data feed 14 is a live data feed that comprises stock bids and offers occurring in real time on a stock exchange, then the source 12 may be, *inter alia*, the New York Stock Exchange. A stored data feed is a data feed of events that previously occurred and is stored at the source 12 on a storage medium such as a video tape (i.e., a "video data feed") or a compact disk. If the data feed 14 is a stored data feed of a recorded movie, then the source 12 may be, *inter alia*, a video tape that includes the recorded movie.

FIG. 2 depicts the data display structure 18 of FIG. 1 in greater detail. In FIG. 2, the data display structure 18 comprises: a main drawer denoted as D_0 ; and N additional drawers generally denoted as D_1, D_2, \dots, D_N , wherein $N \geq 1$. Note that $N=3$ in FIG. 2. The main drawer D_0 overlays the display screen 16 (see FIG. 1), which means that the main drawer D_0 is over (i.e., above or on top of) a portion of the display screen 16. The drawers D_1, D_2, \dots, D_N are in an overlay pattern $\{D_1, D_2, \dots, D_N\}$ relative to D_0 , which means that D_1 conditionally overlays D_0 , D_2 conditionally overlays D_1 , ..., and D_N conditionally overlays D_{N-1} . Generally, each drawer D_i conditionally overlays D_{i-1} for $i=1, 2, \dots, N$, which means that D_i is over (i.e., above or on top of), D_{i-1} whenever D_i and D_{i-1} each overlay a same portion of the display screen 16. Note that the scope of the present invention includes configurations in which D_i and D_{i-1} ($i=1, 2, \dots, N$) do not overlay the same portion of the display screen 16, as is illustrated in FIGS. 18-21. In FIGS. 18-

21, the data display structure **18** of FIG. 1 is depicted in a more detailed view that shows the main drawer D_0 and movable drawers D_1, D_2, D_3, D_4 in a different arrangements in each of FIGS. 18-21. As illustrated in FIGS. 18-21, the present invention does not limit placement, size, location, or direction of movement of any drawer in the data display structure **18** of FIG. 1.

5 In FIG. 2, each drawer D_i has an associated tab T_i as illustrated. Generally, the tab T_i may be placed at any surface portion of the drawer D_i ($i=1, 2, \dots, N$). The drawers $D_0, D_1, D_2, \dots, D_N$ are intended to dynamically display the data feed **14** of FIG. 1 or a portion thereof.

In FIG. 2, each drawer D_i has a "viewable area" A_i ($i=0, 1, 2, \dots, N$), wherein $A_i \geq 0$. The "viewable area" A_i is an area of the drawer D_i that is visible (e.g., not hidden) to a person (i.e., "user" or "viewer") who is viewing the data display structure **18**. If no area of the drawer D_i is visible to the user, then $A_i=0$. The viewable area A_i may change dynamically as the drawer D_i is "being opened" or "being closed". The drawer D_i ($i=1, 2, \dots, N$) is being opened or is being closed if D_i is being moved (e.g., by dragging the tab T_i) in a direction **5** or **6**, respectively. Note that an absence of tabs does not limit the capability of opening or closing the drawers in the data display structure **18**. For example, the drawer D_i ($i=1, 2, \dots, N$) may be further opened or further closed by dragging a bordering edge E_i of the drawer D_i instead of by dragging the tab T_i . If D_i is being moved in the direction **5**, then D_i is being moved in a direction that covers D_0 to a greater extent. If D_i is being moved in the direction **6**, then D_i is being moved in a direction that covers D_0 to a lesser extent. Definitionally, D_i ($i=1, 2, \dots, N$) is adapted to being opened if D_i is capable of being opened (i.e., capable of being moved in the direction **5**), and D_i is adapted to being closed if D_i is capable of being closed (i.e., capable of being moved in the direction **6**). An action of "opening" D_i subjects D_i to being opened; i.e., being moved in the direction **5**. An

action of "closing" D_i subjects D_i to being closed; i.e., being moved in the direction 6.

If D_i is being opened and no other drawer is being moved (i.e., being opened or being closed), then A_i increases and A_{i-1} decreases such that the sum of A_i and A_{i-1} remains approximately constant. If D_i is being closed and no other drawer is being moved, then A_i decreases and A_{i-1} increases such that the sum of A_i and A_{i-1} remains approximately constant. Accordingly, if no other drawer is being moved, then opening or closing drawer D_i so as to change the viewable area in drawer D_i by an amount of ΔA results in the viewable area in drawer D_{i-1} changing by an amount of approximately $-\Delta A$, wherein $\Delta A > 0$ if D_i is being opened and $\Delta A < 0$ if D_i is being closed.

The drawer D_i ($i=0, 1, 2, \dots, N$) is "open" if D_i cannot be moved in the direction 6. If D_i is "open", then D_i is "partially open" if D_i can be moved in the direction 5 and is "fully open" if D_i cannot be moved in the direction 5. The drawer D_i is "closed" if D_i is not open. Thus, D_i is always in one of the following states: partially open, fully open, or closed. Note that in FIG. 2, $A_0 = 0$ if D_1 is fully open, and that $A_0 = A_{0MAX}$ if D_1 is closed, wherein A_{0MAX} is the maximum possible value of A_0 . Also note that in FIG. 2, $(A_1 + A_2 + \dots + A_N)$ is approximately equal to A_{0MAX} .

FIG. 3 depicts FIG. 2 after the drawer D_1 has been moved in the direction 5 and is said to have been moved in a "door-opening" direction.

FIG. 4 depicts FIG. 2 after the drawer D_2 has been moved in the direction 6 and is said to have been moved in a "door-closing" direction.

FIG. 5 depicts the drawers D_1 , D_2 , and D_3 of FIG. 2 such that in FIG. 3 the drawers D_1 , D_2 , and D_3 are each closed.

FIG. 6 depicts the drawers D₁, D₂, and D₃ of FIG. 2 such that in FIG. 3: the drawer D₁ is fully opened, the drawer D₂ is closed, and the drawer D₃ is closed.

FIGS. 7-17 depict data display structures in conjunction with a live data feed of stock bids and offers occurring in real time on the New York Stock Exchange (NYSE). The data display structure shown in each of FIGS. 7-17 is called a “NYSE data display structure”.

FIG. 7 depicts a NYSE data display structure **20** in an initial condition prior to displaying the data feed **14** of FIG. 1. The NYSE data display structure **20** includes a main drawer **22**, an additional drawer **24** having a tab **26** with a “SEARCH” label, and an additional drawer **34** having a tab **36** with a “MY ALERTS” label. The main drawer **22** was more generally represented *supra* in FIGS. 2-5 as D₀. The additional drawer **24** and associated tab **26** was more generally represented *supra* in FIGS. 2 -5 as D₁ and T₁, respectively. The additional drawer **34** and associated tab **36** was more generally represented *supra* in FIGS. 2-5 as D₂ and T₂, respectively. The drawer **24** is an example of a “Search” drawer type, and the drawer **34** is an example of an “Alerts” drawer type. The features that characterize “Search” drawer and “Alerts” drawer types will be presented *infra*.

FIG. 8 depicts FIG. 7 such that the main drawer **22** displays the “entire” (i.e., all of the) data feed **14** of FIG. 1. The drawers **24** and **34** are closed. The “entire” data feed **14** of FIG. 1 is denoted by the word “None” in the window **21** below the “MY PORTFOLIOS” window in an upper right portion of FIG. 8. A portion of the data feed **14** that is less than the entire data feed **14** is displayed on the main drawer **22** when text other than “None” appears in the window **21**, as will be described *infra*.

Displaying a data feed (or a portion thereof) by a given drawer means displaying the data

of the data feed (or of the portion thereof) in such a manner that such data would be visible to a viewer if not covered by a another drawer and if not limited by the viewable area of the given drawer. In contrast, a subset of the data feed may be excluded from being displayed. For example, a “portfolio subset” (to be described *infra*) of the data feed defines a subset of the data feed that is to be displayed and excludes from being displayed the remaining portion of the data feed.

The main drawer **22** is arranged in a “spreadsheet format “ with a spreadsheet having 9 columns having headings of “Time”, “Symbol”, “Bid”, “Offer”, “Bid. Vol.”, “Offer Vol.”, “Status”, “Halt Reason”, and “Corp Act”. Definitionally, the “spreadsheet format” is a tabular format of columns and rows, wherein the ordering of the rows and columns, and contents thereof, may be dictated or influenced by action of a user or viewer of the NYSE data display structure. Each row of the spreadsheet describes an event that a occurred at the time that is listed in the “Time” column of the main drawer **22**. The time associated with an event is called a “timestamp” of the event. Thus the portion of the data feed that is displayed in each row has a unique time stamp and an associated event, wherein the parameters of the event are described by the data entries in said each row.

The “Symbol” column of the main drawer **22** comprises stock symbols of stocks traded on the NYSE.

The “Bid” Column lists bid prices per share by potential buyers of said stocks, which are the stock prices per share that such buyers are willing to pay for the stocks denoted in the “Symbol” column.

The “Offer” column of the main drawer **22** lists offer prices per share by potential sellers

of said stocks, which are the stock prices per share that such sellers are willing to accept as payment for the stocks denoted in the “Symbol” column.

The “Bid Vol.” column of the main drawer **22**, which is a number of shares associated with a price in the “Bid” column, has a specific meaning that depends on what appears in the “Status” column. The “Offer Vol.” column of the main drawer **22**, which is a number of shares associated with a price in the “Offers” column, has a specific meaning that depends on what appears in the “Status” column. Depending on what appears in the “Status” column, data may or may not appear in the “Bid Vol.” and “Offer Vol.” columns. In FIG. 8, there is no data displayed in the “Bid Vol.” and “Offer Vol.” columns.

The “Status” column of the main drawer **22** indicates the status of the offer to buy or sell shares of stock, or other timely trading information concerning the stock associated with the stock identified in the “Symbol” column. The text appearing in the “Status” column of FIG. 8 are “Its Ind” and “Cancel Its Ind”. “Its Ind” may denote, *inter alia*, that an offer to buy or sell has been transferred to another regional exchange (e.g., Pacific Exchange). “Cancel Its Ind” follows “Its Ind” and may denote, *inter alia*, that the “Bid” or “Offer” associated with “Its Ind” was successfully transacted on the another regional exchange. Other possible entries in the “Status” column include, *inter alia*: “Halt” (i.e., trading has been halted); “Delay” (i.e., trading has been delayed); “Resume” (i.e., trading has resumed following a “Halt”); and “MOC Imb Buy” (an imbalance exists at Market On Close such that there is an excess of buyers or sellers for the stock indicated in the “Symbol” column); “Bid new”, “Offer new”, “Bid cancel”, “Offer Cancel” (block of stock of 25,000 or more shares was placed for buy or sell, and said buy or sell

was not executed for a period exceeding 30 seconds). Note that the “Bid Vol.” or Offer Vol.” column may display a value if the “Status” column displays “MOC Imd Buy” as illustrated *infra* in FIG. 17.

The “Halt Reason” column of the main drawer **22** is keyed to the “Status” column. For example, “Status-“Halt Reason = “Halt”-“News Pending” may denote that trading has been halted until an expected news announcement is made. As a second example, “Status-“Halt Reason = “Delay”-“News Pending” may denote that trading has been delayed until an expected news announcement is made (see e.g., FIG. 14). As a third example, “Halt Reason = “Delay”-“Imb” may denote that trading has been delayed due to an imbalance or excess of buyers or sellers for the stock indicated in the “Symbol” column.

The Corp Act” column of the main drawer **22** may indicate an action taken by the corporation associated with the stock denoted in the “Symbol” column (e.g.; the corporation has had an ex-dividend; the corporation has applied for bankruptcy; etc.).

FIG. 8 shows the “Time” column of the main drawer **22** as being highlighted in a green color, which indicates that the rows have been sorted using “Time” as a sort key. Any column title (“Symbol”, Bid”, “Ask”, etc.) can be used as a sort key such as by clicking on the column title that is to serve as the sort key. While FIG. 8 shows a descending sort based on “Time” (i.e., latest time appears in row 1, next latest time appears in row 2, etc.), the scope of the present invention includes both ascending sorts and descending sorts. Whether the sort is ascending or descending can be hard-coded or user-selected, for each sort key individually or for all sort keys collectively.

While the highlighting of the “Time” column of the main drawer **22** in FIG. 8 is by color

(i.e., the green color), the highlighting could be via any manner that brings attention to the “Time” column, such as by color, grey shading, blinking, etc. Generally, whenever any entity (e.g., column, row, button) in any portion of the NYSE data display structure **20** appears highlighted in color, such highlighting could be alternatively accomplished in any manner that brings attention to the entity, such as by color, grey shading, blinking, etc.

FIG. 8 show the top two rows **28** of the main drawer **22** as being highlighted in green. Highlighting of any row (R_{MAIN}) in the main drawer **22** is done for a period of time ΔT_{MAIN} during which R_{MAIN} is initially viewable (i.e., initially viewable to a user or viewer). ΔT_{MAIN} may be a predetermined period of time, namely a period of time that is established prior to the data feed being fed into the main drawer **22**. After said period of time ΔT_{MAIN} , the highlighting is turned off. The highlighting can alternatively be accomplished in any manner that brings attention to the any row R_{MAIN} , such as by color, grey shading, blinking, etc., as explained *supra*. The period of time ΔT_{MAIN} can be of any desired magnitude (e.g., 10 seconds, 20 seconds, 1 minute, etc.). The magnitude of the period of time ΔT_{MAIN} should be big enough for a typical viewer to take notice of the highlighted row R_{MAIN} . For example, a value of ΔT_{MAIN} that is less than one-tenth of a second is probably too short to be practical.

FIG. 9 depicts FIG. 7 such that the main drawer **22** displays the entire data feed **14** of FIG. 1. FIG. 9 differs from FIG. 8 primarily in that no row of the main drawer **22** of FIG. 9 is highlighted, because all rows displayed in main drawer **22** in FIG. 9 have been previously visible for the period of time ΔT_{MAIN} .

FIG. 10 depicts FIG. 7 such that the main drawer **22** displays a “portfolio subset” of the data feed **14**. A “portfolio subset” is defined herein as one or more subsets, wherein each subset

is associated with a stock symbol. FIG. 10 differs from FIG. 8 primarily in that in FIG. 8 the main window 22 displays stocks of the entire data feed 14, while in FIG. 10 the main window 22 displays stocks of the portfolio subset of the data feed 14. The portfolio subset of the data feed 14 is denoted by the word "My Alerts" in the window 21 below "MY PORTFOLIOS" in the upper right portion of FIG. 10. The string "My Alerts" has been named to define a portfolio subset of three stocks denoted by stock symbols RBK, IBM, and MMM. Such naming and defining of "My Alerts" may be implemented by any method known to one of ordinary skill in the art. Thus the portfolio subset "My Alerts" of the data feed 14 is the portion of the data feed 14 that includes the stocks symbolized by RBK, IBM, and MMM, which is confirmed by the appearance of RBK, IBM, and MMM exclusively in the "Symbol" column of the main window 22 in FIG. 10. The portfolio subset associated with RBK, IBM, and MMM includes three subsets: a first subset associated with RBK, a second subset associated with IBM, and a third subset associated with MMM. Thus, the "subset" herein is associated with a stock symbol, and the portfolio subset is associated with one or more of such stock symbols. Accordingly, if the portfolio subset includes all subsets (i.e., all stock symbols) of the data feed 14, then the portfolio subset is all of the data feed 14. However, if the portfolio subset does not include all such subsets, then the portfolio subset is less than all of the data feed. The appearance of "My Alerts" in the window 21 causes only stocks associated with RBK, IBM, and MMM to be displayed in the main window 22, and excludes all stocks other than RBK, IBM, and MMM from being displayed in the main window 22.

The existence of the portfolio "My Alerts" causes the drawer 34 (with "MY ALERTS" on the tab 36) to exist. The drawer 34 is an example of an "Alerts" drawer which has a significance

in relation to the “Search” drawer **24**, wherein said significance will be discussed *infra* in conjunction with FIG. 12.

Based on the preceding discussion of FIGS. 8 and 10, the main window **22** displays a portion of the data feed **14**, wherein the portion of the data feed **14** is: all of the data feed **14** as in FIG. 8; or less than all of the data feed **14** as with the portfolio subset of the data feed **14** in FIG. 10.

FIG. 10 also show the top three rows **31** of the main drawer **22** as being highlighted in green color. The highlighting of the top three rows **31** in FIG. 10 has the same significance as does the highlighting of the top two rows **31** in FIG. 8 discussed *supra*.

FIG. 11 depicts FIG. 7 such that the main drawer **22** displays the “My Alerts” portfolio subset of the data feed **14**. FIG. 11 differs from FIG. 10 primarily in that no row of the main drawer **22** of FIG. 11 is highlighted, because all rows displayed in main drawer **22** in FIG. 11 have been visible for the predetermined period of time (i.e., for ΔT_{MAIN} discussed *supra*).

FIG. 12 depicts FIG. 7 such that the main drawer **22** displays the “My Alerts” portfolio subset of the data feed **14**. In FIG. 12, the Alerts drawer **34** (which has “MY ALERTS” on its tag **36**) and the Search drawer **24** (which has “SEARCH” on its tag **26**) are each open, and each visibly displays data. The Alerts drawer **34** includes buttons **41**, **42**, and **43**, respectively labeled with the stock symbols RBK, IBM, and MMM which are defined for the “My Alerts” portfolio as discussed *supra*. The Search drawer **24** is arranged in the spreadsheet format and has essentially the same format as the main drawer **22** with respect to the columns. The data displayed by the Search drawer **24** at any given time is one subset of data, namely data associated one of the three stock symbols RBK, IBM, and MMM defined by the “My Alerts” portfolio. The

one stock symbol for which data is displayed in the Search drawer **24** is determined which of the three buttons **41**, **42**, and **43** is selected, such as by a user or viewer. If the button **41** is selected, then the Search drawer **24** will display the subset of the data feed **14** that is associated with the RBK stock symbol. If the button **42** is selected, then the Search drawer **24** will display the subset of the data feed **14** that is associated with the IBM stock symbol. If the buttons **43** is selected, then the Search drawer **24** will display the subset of the data feed **14** that is associated with the MMM stock.

While the “My Alerts” portfolio subset includes three stock symbols (RBK, IBM, and MMM) , a portfolio subset may generally have M stock symbols ($M \geq 1$), with an associated Alerts drawer having M buttons denoted as B_1, B_2, \dots, B_M , and with an associated Search drawer **24**. The buttons B_1, B_2, \dots, B_M respectively identify a subset S_1, S_2, \dots, S_M of the data feed **14**. Selection of button B_m ($m=1, 2, \dots, M$) causes the Search drawer **24** to dynamically display S_m in spreadsheet format. Since the “My Alerts” portfolio subset is associated with the Alerts drawer **34** of buttons, the “My Alerts” portfolio subset may be equivalently viewed as a portfolio of buttons. Such a portfolio of buttons is selectable (e.g., user selectable) from a menu that includes at least one such portfolios of buttons (e.g. a plurality of portfolios of buttons). Thus, if K portfolios of buttons were available to be selected ($K \geq 1$), the NYSE data display structure **20** would include K Alert drawers and K associated Search drawers.

FIG. 12 shows the “Time” column of the main drawer **22** as being highlighted in a green color, which indicates that the rows of the main drawer **22** have been sorted using “Time” as a sort key. All aspects of sorting columns of the main drawer **22**, and of associated highlighting, that was discussed *supra* in conjunction with FIG. 8 apply likewise to the main drawer **22** in FIG.

12. Additionally, the Search drawer is also sorted using “Time” as a sort key.

Generally, a sorting of the main drawer **22** in accordance with a sort key causes a sorting of the Search drawer in accordance with the same sort key. Further, a sorting of the main drawer **22** in accordance with a sort key causes a sorting of each additional drawer that is sortable in accordance with the same sort key.

Inversely, the scope of the present invention includes sorting the Search drawer **24** in accordance with a sort key, which causes a sorting of the main drawer **22** in accordance with the sort key. Further, a sorting a first drawer of the additional drawers in accordance with a sort key causes a sorting in accordance with the sort key of the main drawer **22** and of all remaining drawers of the data display structure which are sortable in accordance with the sort key.

The various sorting capabilities described *supra* in which a sort in a first drawer triggers a sort in a second drawer illustrates the following feature of the present invention. A first drawer of a data display structure (e.g, the NYSE data display structure **20**) is adapted to display content as a function of a user command that is directed to a second drawer of the data display structure. The previous feature of the present invention is further supported by selection of a button in the Alert Drawer to determine which stock is to be displayed in the Search drawer.

In FIG. 12, all data of the data feed **14** at a given time stamp and relating to a given stock symbol is displayed in no more than one row of the main drawer **22** and of the Search drawer **24**. More generally, all data of the data feed **14** at a given time stamp and relating to a given sort key of the main drawer **22** is displayed in no more than one row of the main drawer **22** and of the Search drawer **24**.

FIG. 12 shows the top two rows **28** of the main drawer **22** as being highlighted in green, similar to what was shown *supra* for the top two rows **28** of the main drawer **22** in FIG. 8. The discussion *supra* relating to such highlighting of the top two rows **28** of the main drawer **22** in FIG. 8 applies likewise to the highlighting of the top two rows **28** of the main drawer **22** in FIG.

12. In FIG. 12, the top row **29** of the Search drawer **24** is shown as being highlighted in orange, which is analogous to what was shown *supra* for the top two rows **28** of the main drawer **22** in FIG. 8. The discussion *supra* relating to such highlighting of the top two rows **28** of the main drawer **22** in FIG. 8 applies to the highlighting of the top row **29** of the Search drawer **24** in FIG.

12. Accordingly, highlighting of any row (R_{SEARCH}) of the Search drawer **24** is done for a period of time ΔT_{SEARCH} during which the R_{SEARCH} is initially viewable (i.e., initially viewable to a user or viewer). ΔT_{SEARCH} may be a predetermined period of time, namely a period of time that is established prior to the data feed being fed into the main drawer **22**. After said period of time ΔT_{SEARCH} , said highlighting is turned off the any row R_{SEARCH} . The period of time ΔT_{SEARCH} can be of any desired magnitude (e.g., 10 seconds, 20 seconds, 1 minute, etc.). The magnitude of the period of time ΔT_{SEARCH} should be big enough for a typical viewer to take notice of the highlighted row R_{SEARCH} . For example, a value of ΔT_{SEARCH} that is less than one-tenth of a second is probably too short to be practical.

FIG. 12 shows buttons **41** and **43** highlighted in bright orange color, which means that there is data in the Search drawer **24** that has not been viewable by a user or viewer. The buttons **41** and **43** will remain highlighted until such data in the Search drawer **24** becomes viewable. Such highlighting may be in any form (e.g., color, shades of gray, blinking, etc.) that facilitates distinguishing the highlighted buttons **41** and **43** from the unhighlighted button **42**, as discussed

supra. Note that the aforementioned highlighting of any button of the Alerts drawer **34** has caused the tab **36** of the Alerts drawer **34** to be also highlighted in bright orange color.

FIG. 13 depicts FIG. 7 such that the main drawer **22** displays the “My Alerts” portfolio subset of the data feed **14**. A difference between FIG. 13 and FIG. 12 is that FIG. 13 shows the “Bid” column being sorted with “Bid” as a sort key, while FIG. 12 shows the “Time” column being sorted with “Time” as a sort key. In FIG. 13, both the main drawer **22** and the Search drawer **24** are sorted in accordance with “Bid” as a sort key. Additionally in FIG. 13, none of the buttons in the Alerts drawer **34** are highlighted and, accordingly, the tab **36** (with the “MY ALERTS” label) is not highlighted.

FIG. 14 depicts FIG. 7 such that the main drawer **22** displays the “My Alerts” portfolio subset of the data feed **14**. A difference between FIG. 14 and FIG. 12 is that FIG. 14 shows the “Status” column being sorted with “Status” as a sort key, while FIG. 12 shows the “Time” column being sorted with “Time” as a sort key. In FIG. 14, both the main drawer **22** and the Search drawer **24** are sorted in accordance with “Status” as a sort key. Additionally in FIG. 14, none of the buttons in the Alerts drawer **34** are highlighted and, accordingly, the tab **36** (with the “MY ALERTS” label) is not highlighted.

FIG. 15 depicts FIG. 7 such that the main drawer **22** displays the “My Alerts” portfolio subset of the data feed **14**. FIG. 15 differs from FIG. 14 in that the Search drawer **24** and the Alert drawer **34** are each closed in FIG. 15 and each open in FIG. 14.

FIG. 16 depicts FIG. 7 such that the main drawer **22** displays the “My Alerts” portfolio subset of the data feed **14**. FIG. 16 differs from FIG. 14 in that the Alert drawer **34** is closed in FIG. 16 and open in FIG. 14.

FIG. 17 depicts FIG. 7 such that the main drawer **22** displays the “My Alerts” portfolio subset of the data feed **14**. FIG. 17 differs from FIG. 10 in that in FIG. 17 the Search drawer **24** is closed and the Alert drawer **34** is open, while in FIG. 10 both the Search drawer **24** and the Alert drawer **34** are closed.

5 The features described *supra* for the NYSE data display structure **20** of FIGS. 7-17 apply generally to the data display structure **18** described for FIGS. 1-7. For example, the stock symbols (e.g., RBK, IBM, MMM, etc.) represent any way of dividing the data feed **14** into subsets, and the portfolio subset represents any way of grouping a finite number of such subsets together as a unit. Further in relation to FIGS. 2-6, none of the main drawer D_0 or of the N additional drawers D_1, D_2, \dots, D_N are required display any portion of a data feed in the spreadsheet format.

Although the NYSE data display structure **20** of FIGS. 7-17 relates to displaying a live data feed of stock market bids and offers, the features described *supra* for the NYSE data display structure **20** of FIGS. 7-17 also apply to a stored data feed such as a video data feed.

15 An example of a video data feed application for a movie data feed is as follows. The drawer D_0 dynamically displays the movie itself. A portfolio subset of words is selected (such as by a user or viewer), wherein each such word is a subset of the data feed and the words are analogous to the stock symbols described *supra* in conjunction with FIGS. 7-17. The selected portfolio subset of words generates an Alerts drawer of buttons with each button corresponding to a word in the selected portfolio subset of words. There is a Search drawer that displays content of the data feed relating to a word whose button in the Alerts drawer is selected. Such

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content may include, *inter alia*, a sentence or paragraph spoken in the movie, wherein said sentence or paragraph includes said word.

While embodiments of the present invention have been described herein for purposes of illustration, many modifications and changes will become apparent to those skilled in the art.

5 Accordingly, the appended claims are intended to encompass all such modifications and changes as fall within the true spirit and scope of this invention.

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